Delta Plan Performance Measures – Staff Recommendations

Delta Plan Chapter 6: Improve Water Quality to Protect Human Health and the Environment

Strategies supporting this chapter:

1. Require Delta-Specific Water Quality Protection
2. Protect Beneficial Uses By Managing Salinity
3. Improve Drinking Water Quality
4. Improve Environmental Water Quality

Ref. #	Strategy #	Policy or Rec.	Short Title	Type	Current Delta Plan Wording	Proposed Delta Plan Wording or Recommended Reclassification (in bold)	Performance Measure Components
6.22	1	WQ-R1	Meet control plan objectives	Outcome	Water quality in the Delta meets objectives established in the applicable water quality control plan.	Water quality in the Delta **and Suisun Marsh** meets **the San Francisco, Central Valley, and Bay-Delta Basin Plan** objectives**.**	**Metric:** • The reduction in the number of impaired water bodies on the 303d list. **Baseline:** • Adoption of the Delta Plan May 2013. **Target:** • Water quality objectives in the respective Control Plans listed, are met. • TMDLs are being developed and Basin Plan amendments are being implemented for those water bodies not meeting the water quality objective (i.e. those listed under the Clean Water Act 303 (d) list). **Data Sources:** • SWRCB website database: State Board Bay-Delta Plan efforts. • CVRWQCB website database: Central Valley Regional Board Basin Planning. • SFBRWQCB website database: San Francisco Basin Planning.
6.19	2		Salinity Management/ Salinity Trends	Outcome	N/A: New measure	**Monitor salinity in the Delta, utilizing extensive existing electrical conductivity (D1641) and X2 measurement data that meets State Water Resources Control Board objectives.**	**Metric:** • Daily electrical conductivity and X2. **Baseline:** • Average annual salinity levels from 1995 to 2015. **Target:** • Meeting State Water Resources Control Board objectives for ecosystem purposes. • Meeting all other salinity objectives for urban and agricultural use. **Data Sources:** • California Data Exchange Center (CDEC) data. • Delta Compliance report provides daily flow and water quality status by station. • Real Time Data and Forecasting Comprehensive Program (RTDF-CP)

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							report. • Bay-Delta Live visual model of salinity changes in the Delta over time. • My Water Quality Portal. • Historic Fresh Water and Salinity Conditions in the Western Sacramento-San Joaquin Delta and Suisun Bay report – SWRCB February 2010.
6.23	3	WQ-R5	Construct No-Bay Aqueduct AIP	Output	DWR begins constructing the North Bay Aqueduct Alternate Intake Project as soon as possible after the environmental impact report is completed.	DWR begins constructing the North Bay Aqueduct Alternate Intake Project as soon as possible after the environmental impact report is completed.	**Metric:** • Project completed. **Baseline:** • The Notice of Preparation (NOP) For the North Bay Aqueduct Alternate Intake Project Environmental Impact Report (EIR) was published on November 24, 2009. **Target:** • According to the project manager for the North Bay Aqueduct Alternate Intake Project, the final EIR projected date is September/October 2016. **Data Sources:** • Department of Water Resources "current projects" information web page. • Outside source: Department of Water Resources project manager.
6.28	3	WQ-R6	Protect groundwater beneficial uses	Output	N/A: New measure	**Protect groundwater beneficial uses. Groundwater meets drinking water quality standards in the Central Valley for levels of nitrate 10ppm NO3-N and arsenic 10ppb As.**	**Metrics:** • Number of groundwater wells used for domestic water supplies that exceed arsenic and nitrate drinking water limits in the San Joaquin Valley. • Percentage of population with access to clean drinking water in the San Joaquin Valley.[1] **Baseline:** • Water Quality standards in the Central Valley for levels of nitrate 10ppm NO3-N and arsenic 10ppb As. • Baseline of population with access to clean drinking water in the Central Valley will be established once this performance measure is adopted. **Target:** • Maintain or reduce nitrate and arsenic levels from baseline levels. • Increase percent of population with access to clean drinking water in the Central Valley from baseline. **Data Sources:** • Track access to clean drinking water thought permitting from State Water Resources Control Board.

[1] The region is only specified to San Joaquin Valley because this region has many impaired domestic water systems and also receives water for domestic water supplies that is exported from the Valley.

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							• USGS data. • California Environmental Protection Agency data. • US Environmental Protection Agency data. • SWRCB data and My Water Quality Portal. • SWRCB Drinking Water Programs.

6.18	4	WQ-R8
		WQ-R11
		WQ-R12
			Meet dissolved oxygen standards	Outcome	Progress toward consistently meeting applicable DO standards in the Delta by 2020.	Progress toward consistently meeting applicable DO standards in the Delta by 2020 **(i.e. Stockton Deep Water Ship Channel, Suisun Marsh, Old and Middle River, and Sacramento Deep Water Ship Channel).**	**Metric:**
							• Milligrams of dissolved oxygen per liter of water (mg/L).
							Baseline:
							• Due to poor historical baseline details, the baseline is set to 5mg/L at all times and 6mg/L from September 1 – November 30, as that is the current DO regulatory standard.
							Target:
							• Meet water quality objectives for DO in the Stockton Deep Water Ship Channel, Suisun Marsh, Old and Middle River, and Sacramento Deep Water Ship Channel.
							• Maintain or exceed the minimum DO concentrations of:
							  ○ 5 mg/L at all times.
							  ○ 6 mg/L from September through November.
							Data Sources:
							• DO data and graphs from CDEC.
							• Stockton Deep Water Ship Channel monthly DO data reports from the Day-Delta Office, DWR.
							• NOAA National Estuarine Research Reserve System (NERRS) Centralized Data Management website.
							• Outreach: External experts with water boards.

6.20	4	WQ-R9	Implement Delta Regional Monitoring Program (RMP)	Output	A Delta regional water quality monitoring program is implemented within the first 5 years of the Delta Plan.	**Administrative Performance Measure:** A Delta **regional monitoring** program is implemented within the first 5 years of the Delta Plan.	N/A
6.21	4	WQ-R8	Concentration of pesticides	Output	TMDLs for critical pesticides (i.e., diazinon, chlorpyrifos, and pyrethroids) in the waters and sediments of the Delta are met by 2020.	TMDLs for critical pesticides (i.e., diazinon, Pyrethroids and chlorpyrifos) in the waters and sediments of the Delta are met by 2020.	**Metric:** • Progress in developing and meeting TMDLs. **Baseline:** • December 2004 monitoring baseline to align with USEPA Total Maximum Daily Load (TMDL) report. **Target:**

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							As defined within applicable TMDL and published in the Central Valley (CV) Regional Water Quality Control Board Amendments to the Water Quality Control Plan for the control of Diazinon and Chlorpyrifos runoff into the Sacramento-San Joaquin Delta (June 2006); and proposed amendments for the control of Pyrethroid pesticides (May 2015). Target date is defined in the Delta Plan as year 2020. Other compliance dates are defined in management plans submitted by dischargers. Following are in micrograms/liter: • Chlorpyrifos: ○ 0.025, acute, 1-hour average ○ 0.015, chronic, 4-day average ○ Not to be exceeded once in a three year period • Diazinon: ○ 0.16, acute, 1-hour average ○ 0.10, chronic, 4-day average ○ Not to be exceeded once in a three year period. • Bifenthrin (Pyrethroid): ○ 0.06, acute, 1-hour average ○ 0.01, chronic, 4-day average ○ Not to be exceeded once in a three year period. • Cyfluthrin (Pyrethroid): ○ 0.07, acute, 1-hour average ○ 0.01, chronic, 4-day average ○ Not to be exceeded once in a three year period. • Cypermethrin (Pyrethroid): ○ 0.04, acute, 1-hour average ○ 0.01, chronic, 4-day average ○ Not to be exceeded once in a three year period. • Esfenvalerate (Pyrethroid) : ○ 0.2, acute, 1-hour average ○ 0.03, chronic, 4-day average ○ Not to be exceeded once in a three year period. • Lambda-cyhalothrin (Pyrethroid): ○ 0.03, acute, 1-hour average ○ 0.01, chronic, 4-day average ○ Not to be exceeded once in a three year period. • Permethrin (Pyrethroid): ○ 6, acute, 1-hour average ○ 1, chronic, 4-day average ○ Not to be exceeded once in a three year period.

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							Data Sources: • Excel export from California Environmental Data Exchange Network (CEDEN) website. • Excel export of pesticide monitoring data not already in CEDEN, Region #5, TMDLs. • TMDL Outcome Measures Report Cards (Water Boards Annual Performance Report), Office of Research, Planning & Performance. • Preliminary TMDL Implementation progress reports, US EPA, and Sacramento. • California Pesticide Information Portal (CalPIP): DPR Pesticide Use Report Database, Summaries, and related links. • NPDES: National Pollutant Discharge Elimination System (NPDES) permit, for point source water quality data obtained from water permits, USEPA and CA Water Boards. • East San Joaquin Water Quality Coalition: The Coalition represents "dischargers" specifically comprising agricultural and growers. The coalition is an alternative source of non-point source pesticide load data. • SWRCB 2010 303(d) Integrated Report: Format: List of impaired water bodies, by region and water body name. • Donald P. Weston publications on pesticides.
6.24	4	WQ-R8	Reduce inorganic nutrients	Output	Progress toward reducing concentrations of inorganic nutrients (ammonium, nitrate, and phosphate) in Delta waters over the next decade.	Progress toward reducing concentrations **and/or loads** of inorganic nutrients (ammonium, nitrate, and phosphate) in Delta waters over the next decade. Notes: According to the Central Valley Regional Water Quality Control Board, the Delta has long been recognized as having elevated concentrations of nutrients. These high nutrient levels were not clearly linked to widespread water quality problems except for periodic low oxygen levels. However, the effects of nutrients on the Delta are now being reassessed. The Water Board staff developed a Strategic Work plan, which contains a nutrient strategy that included tasks, deliverables and a timeline. The goal is to develop a Delta Nutrient Research Plan to determine whether nutrient concentrations cause or contribute to water quality problems in the Delta.	**Metric:** • Concentration and/or loads of ammonium, nitrate, and phosphate at key Delta water quality monitoring locations. **Baseline:** • Nutrient concentrations, loads, and trends during the period of 2004-2013. **Target:** N/A • Nutrient Strategic Plans or TMDLs have not been developed. Numeric nutrient endpoint/criteria are also under development. **Data Sources:** • National Water Quality Monitoring Council- Water Quality Portal. • CEDEN. • Brandon Schlegel and Joseph L. Domagalski publication on "Riverine Nutrient Trends in the Sacramento and San Joaquin River Basins, California: A Comparison to State and Regional Water Quality Policies".

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6.25	4	WQ-R8	Reduce measureable toxicity	Outcome	Trends in measurable toxicity from pesticides and other pollutants in Delta water will be downward over the next decade.	Trends in measurable toxicity from pesticides**, including herbicides, insecticides, and fungicides,** and other pollutants **(i.e. pharmaceuticals, personal care products, and selenium)** in Delta water will be downward over the next decade.	**Metric:** • Measurable toxicity testing using fish, invertebrates, and the USEPA approved test methods for algae. **Baseline:** • Trends associated with 2008 levels. Stream Pollution Trends (SPoT) Monitoring Program, monitors trends in toxicity and pollution of California water, which was implemented in 2008. **Target:** • Downwards trend of measurable toxicity results for Delta water bodies. **Data Sources:** • SWRCB, Stream Pollution Trends Monitoring Program (SPoT). • SWRCB, Surface Water Ambient Monitoring Program (SWAMP). • San Francisco Estuary Institute, contaminant data. • SWRCB, (CEDEN). • USGS database.
6.26	1, 4	WQ-R3 WQ-R8	Lessen harmful algal blooms	Outcome	HABs will lessen in severity and spatial coverage in the Delta over the next decade.	HABs will lessen in **their abundance** and spatial coverage in the Delta over the next decade.	**Metrics:** • Aerial distribution estimates of harmful algal blooms (HABs), by acres in the Delta, (e.g. microcystis). • Abundance of harmful algal blooms (HABs), in the Delta, (e.g. microcystis). **Baseline:** • Sighting records with DWR dates back to the 1999-2000. **Target:** • Trend in reducing abundance and spatial coverage based on the 2000-2015 baseline data. **Data Sources:** • California Environmental Data Exchange Network data (CEDEN). • Delta RMP monitoring program. • Outreach: External experts with UC Davis water quality programs or DWR's water quality staff.

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6.27	1, 4	WQ-R3 WQ-R8	Lessen nuisance non-native plants	Outcome	The spatial distribution and productivity of nuisance nonnative aquatic plants will decline over the next decade.	The spatial distribution and **coverage** of nuisance nonnative aquatic plants will decline over the next decade. Notes: The only data available Delta-wide and for multiple years, is water hyacinth. Monitoring of the entire Delta or discrete units of concern must be conducted for other aquatic invasive species of concern. Individual baselines for each aquatic invasive plant species will be established due to individual plant ecology. Although a baseline has been established based on the 2000-2004 UC Davis data, DPR/DBW and NASA are currently conducting Delta-wide land surveys for water hyacinth. The survey is analyzing historical satellite imagery of the Delta, and will provide a more accurate baseline for the spatial distribution and coverage, as well as help detect any future trends.	**Metric:** • Acreage of invasive aquatic plants in the Delta (e.g. water hyacinth and others as data becomes available). **Baseline:** • 2000-2004 UC Davis water hyacinth monitoring surveys. **Target:** • Water hyacinth is trending downward. **Data Sources:** • Department of Parks and Recreation/ Division of Boating and • Waterways annual reports. • Department of Parks and Recreation/ Division of Boating and Waterways, NASA, and United State Department of Agriculture – Agricultural Research Service published studies. • UC Davis experts regarding aerial mapping of spatial extent using remote sensing data. • Floating and Submerged Aquatic Vegetation section in the State of the Estuary Report. • California Estuary Monitoring Workgroup Portal. • USDA-ARS conducts research to develop new methods and technologies for aquatic weed control programs in the Delta and throughout the Western US. • Individual monitoring reports from specific sites.